



NEB-228.ST25.txt  
SEQUENCE LISTING

Morgan, Richard  
Bhatia, Tanya

<120> A Novel Type II Restriction Endonuclease, CstMI, Obtainable From  
Corynebacterium striatum M82B And A Process For Producing The  
Same

<130> NEB-228

<160> 17

<170> PatentIn version 3.2

<210> 1

<211> 2859

<212> DNA

<213> CstMI gene locus

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ccgtcgacgt cgggtggccgc attagagcgc ttccgcgact ccctgtctga gctggatttc 1200  
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## NEB-228.ST25.txt

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 <213> CstMi gene locus

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Glu Ala Glu Asn Arg Pro Ala Thr Glu Ser Ser His Asp Gln Gln Phe
      35      40      45
Trp Gly Asp Leu Leu Asp Cys Phe Gly Val Asn Ala Arg Asp Leu Tyr
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Leu Tyr Gln Arg Ser Ala Lys Arg Ala Ser Thr Gly Arg Thr Gly Lys
      65      70      75      80
Ile Asp Met Phe Met Pro Gly Lys Val Ile Gly Glu Ala Lys Ser Leu
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Gly Val Pro Leu Asp Asp Ala Tyr Ala Gln Ala Leu Asp Tyr Leu Leu
      100      105      110
Gly Gly Thr Ile Ala Asn Ser His Met Pro Ala Tyr Val Val Cys Ser
      115      120      125
Asn Phe Glu Thr Leu Arg Val Thr Arg Leu Asn Arg Thr Tyr Val Gly
      130      135      140
Asp Ser Ala Asp Trp Asp Ile Thr Phe Pro Leu Ala Glu Ile Asp Glu
      145      150      155      160
His Ile Glu Gln Leu Ala Phe Leu Ala Asp Tyr Glu Thr Ser Ala Tyr
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Arg Glu Glu Glu Lys Ala Ser Leu Glu Ala Ser Arg Leu Met Val Glu
      180      185      190
Leu Phe Arg Ala Met Asn Gly Asp Asp Val Asp Glu Ala Val Gly Asp
      195      200      205
Asp Ala Pro Thr Thr Pro Glu Glu Glu Asp Glu Arg Val Met Arg Thr
      210      215      220
Ser Ile Tyr Leu Thr Arg Ile Leu Phe Leu Leu Phe Gly Asp Asp Ala
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Gly Leu Trp Asp Thr Pro His Leu Phe Ala Asp Phe Val Arg Asn Glu
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## NEB-228.ST25.txt

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 Ala Lys Phe Pro Tyr Val Asn Gly Ala Leu Phe Ala Glu Pro Leu Ala  
 290 295 300  
 Ser Glu Tyr Phe Asp Tyr Gln Met Arg Glu Ala Leu Leu Ala Ala Cys  
 305 310 315 320  
 Asp Phe Asp Trp Ser Thr Ile Asp Val Ser Val Phe Gly Ser Leu Phe  
 325 330 335  
 Gln Leu Val Lys Ser Lys Glu Ala Arg Arg Ser Asp Gly Glu His Tyr  
 340 345 350  
 Thr Ser Lys Ala Asn Ile Met Lys Thr Ile Gly Pro Leu Phe Leu Asp  
 355 360 365  
 Glu Leu Arg Ala Glu Ala Asp Lys Leu Val Ser Ser Pro Ser Thr Ser  
 370 375 380  
 Val Ala Ala Leu Glu Arg Phe Arg Asp Ser Leu Ser Glu Leu Val Phe  
 385 390 395 400  
 Ala Asp Met Ala Cys Gly Ser Gly Asn Phe Leu Leu Leu Ala Tyr Arg  
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 Glu Leu Arg Arg Ile Glu Thr Asp Ile Ile Val Ala Ile Arg Gln Arg  
 420 425 430  
 Arg Gly Glu Thr Gly Met Ser Leu Asn Ile Glu Trp Glu Gln Lys Leu  
 435 440 445  
 Ser Ile Gly Gln Phe Tyr Gly Ile Glu Leu Asn Trp Trp Pro Ala Lys  
 450 455 460  
 Ile Ala Glu Thr Ala Met Phe Leu Val Asp His Gln Ala Asn Lys Glu  
 465 470 475 480  
 Leu Ala Asn Ala Val Gly Arg Pro Pro Glu Arg Leu Pro Ile Lys Ile  
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 Thr Ala His Ile Val His Gly Asn Ala Leu Gln Leu Asp Trp Ala Asp  
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Ile Leu Ser Ala Ser Ala Ala Lys Thr Tyr Ile Phe Gly Asn Pro Pro  
515 520 525

Phe Leu Gly His Ala Thr Arg Thr Ala Glu Gln Ala Gln Glu Leu Arg  
530 535 540

Asp Leu Trp Gly Thr Lys Asp Ile Ser Arg Leu Asp Tyr Val Thr Gly  
545 550 555 560

Trp His Ala Lys Cys Leu Asp Phe Phe Lys Ser Arg Glu Gly Arg Phe  
565 570 575

Ala Phe Val Thr Thr Asn Ser Ile Thr Gln Gly Asp Gln Val Pro Arg  
580 585 590

Leu Phe Gly Pro Ile Phe Lys Ala Gly Trp Arg Ile Arg Phe Ala His  
595 600 605

Arg Thr Phe Ala Trp Asp Ser Glu Ala Pro Gly Lys Ala Ala Val His  
610 615 620

Cys Val Ile Val Gly Phe Asp Lys Glu Ser Gln Pro Arg Pro Arg Leu  
625 630 635 640

Trp Asp Tyr Pro Asp Val Lys Gly Glu Pro Val Ser Val Glu Val Gly  
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Gln Ser Ile Asn Ala Tyr Leu Val Asp Gly Pro Asn Val Leu Val Asp  
660 665 670

Lys Ser Arg His Pro Ile Ser Ser Glu Ile Ser Pro Ala Thr Phe Gly  
675 680 685

Asn Met Ala Arg Asp Gly Gly Asn Leu Leu Val Glu Val Asp Glu Tyr  
690 695 700

Asp Glu Val Met Ser Asp Pro Val Ala Ala Lys Tyr Val Arg Pro Phe  
705 710 715 720

Arg Gly Ser Arg Glu Leu Met Asn Gly Leu Asp Arg Trp Cys Leu Trp  
725 730 735

Leu Val Asp Val Ala Pro Ser Asp Ile Ala Gln Ser Pro Val Leu Lys  
740 745 750

Lys Arg Leu Glu Ala Val Lys Ser Phe Arg Ala Asp Ser Lys Ala Ala  
755 760 765

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Ser Thr Arg Lys Met Ala Glu Thr Pro His Leu Phe Gly Gln Arg Ser  
770 775 780

Gln Pro Asp Thr Asp Tyr Leu Cys Leu Pro Lys Val Val Ser Glu Arg  
785 790 795 800

Arg Ser Tyr Phe Thr Val Gln Arg Tyr Pro Ser Asn Val Ile Ala Ser  
805 810 815

Asp Leu Val Phe His Ala Gln Asp Pro Asp Gly Leu Met Phe Ala Leu  
820 825 830

Ala Ser Ser Ser Met Phe Ile Thr Trp Gln Lys Ser Ile Gly Gly Arg  
835 840 845

Leu Lys Ser Asp Leu Arg Phe Ala Asn Thr Leu Thr Trp Asn Thr Phe  
850 855 860

Pro Val Pro Glu Leu Asp Glu Lys Thr Arg Gln Arg Ile Ile Lys Ala  
865 870 875 880

Gly Lys Lys Val Leu Asp Ala Arg Ala Leu His Pro Glu Arg Ser Leu  
885 890 895

Ala Glu His Tyr Asn Pro Leu Ala Met Ala Pro Glu Leu Ile Lys Ala  
900 905 910

His Asp Ala Leu Asp Arg Glu Val Asp Lys Ala Phe Gly Ala Pro Arg  
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Glu Lys Leu Ile Ser His Gln Pro  
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<223> resulting cleaved DNA

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Leu Leu Asp Cys Phe Gly Val Asn Ala Arg Asp Leu Tyr Leu Tyr Gln  
35 40 45

Arg Ser Ala Lys Arg Ala Ser Thr Gly Arg Thr Gly Lys Ile Asp Met  
50 55 60

Phe Met Pro Gly Lys Val Ile Gly Glu Ala Lys Ser Leu Gly Val Pro  
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Leu Asp Asp Ala Tyr Ala Gln Ala Leu Asp Tyr Leu Leu Gly Gly Thr  
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Ile Ala Asn Ser His Met Pro Ala Tyr Val Val Cys Ser Asn Phe Glu  
100 105 110

Thr Leu Arg Val Thr Arg Leu Asn Arg Thr Tyr Val Gly Asp Ser Ala  
115 120 125

Asp Trp Asp Ile Thr Phe Pro Leu Ala Glu Ile Asp Glu His Ile Glu  
130 135 140

Gln Leu Ala Phe Leu Ala Asp Tyr Glu Thr Ser Ala Tyr Arg Glu Glu  
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Glu Lys Ala Ser Leu Glu Ala Ser Arg Leu Met Val Glu Leu Phe Arg  
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Ala Met Asn Gly Asp Asp Val Asp Glu Ala Val Gly Asp Asp Ala Pro  
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Leu Thr Arg Ile Leu Phe Leu Leu Phe Gly Asp Asp Ala Gly Leu Trp  
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Asp Thr Pro His Leu Phe Ala Asp Phe Val Arg Asn Glu Thr Thr Pro  
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 Glu Ser Leu Gly Pro Gln Leu Asn Glu Leu Phe Ser Val Leu Asn Thr  
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 515 520 525  
 Gly Thr Lys Asp Ile Ser Arg Leu Asp Tyr Val Thr Gly Trp His Ala  
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 545 550 555 560  
 Thr Thr Asn Ser Ile Thr Gln Gly Asp Gln Val Pro Arg Leu Phe Gly  
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 Pro Ile Phe Lys Ala Gly Trp Arg Ile Arg Phe Ala His Arg Thr Phe  
 580 585 590  
 Ala Trp Asp Ser Glu Ala Pro Gly Lys Ala Ala Val His Cys Val Ile  
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 Val Gly Phe Asp Lys Glu Ser Gln Pro Arg Pro Arg Leu Trp Asp Tyr  
 610 615 620  
 Pro Asp Val Lys Gly Glu Pro Val Ser Val Glu Val Gly Gln Ser Ile  
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 Asn Ala Tyr Leu Val Asp Gly Pro Asn Val Leu Val Asp Lys Ser Arg  
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 His Pro Ile Ser Ser Glu Ile Ser Pro Ala Thr Phe Gly Asn Met Ala  
 660 665 670  
 Arg Asp Gly Gly Asn Leu Leu Val Glu Val Asp Glu Tyr Asp Glu Val  
 675 680 685  
 Met Ser Asp Pro Val Ala Ala Lys Tyr Val Arg Pro Phe Arg Gly Ser  
 690 695 700  
 Arg Glu Leu Met Asn Gly Leu Asp Arg Trp Cys Leu Trp Leu Val Asp  
 705 710 715 720  
 Val Ala Pro Ser Asp Ile Ala Gln Ser Pro Val Leu Lys Lys Arg Leu  
 725 730 735

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Glu Ala Val Lys Ser Phe Arg Ala Asp Ser Lys Ala Ala Ser Thr Arg  
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Lys Met Ala Glu Thr Pro His Leu Phe Gly Gln Arg Ser Gln Pro Asp  
755 760 765

Thr Asp Tyr Leu Cys Leu Pro Lys Val Val Ser Glu Arg Arg Ser Tyr  
770 775 780

Phe Thr Val Gln Arg Tyr Pro Ser Asn Val Ile Ala Ser Asp Leu Val  
785 790 795 800

Phe His Ala Gln Asp Pro Asp Gly Leu Met Phe Ala Leu Ala Ser Ser  
805 810 815

Ser Met Phe Ile Thr Trp Gln Lys Ser Ile Gly Gly Arg Leu Lys Ser  
820 825 830

Asp Leu Arg Phe Ala Asn Thr Leu Thr Trp Asn Thr Phe Pro Val Pro  
835 840 845

Glu Leu Asp Glu Lys Thr Arg Gln Arg Ile Ile Lys Ala Gly Lys Lys  
850 855 860

Val Leu Asp Ala Arg Ala Leu His Pro Glu Arg Ser Leu Ala Glu His  
865 870 875 880

Tyr Asn Pro Leu Ala Met Ala Pro Glu Leu Ile Lys Ala His Asp Ala  
885 890 895

Leu Asp Arg Glu Val Asp Lys Ala Phe Gly Ala Pro Arg Lys Leu Thr  
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Ile Ser His Gln Pro  
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## NEB-228.ST25.txt

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 35 40 45  
 Lys Lys Phe Ala Lys Ala His Lys Glu Gln Ser Arg Gly Phe Val Asp  
 50 55 60  
 Leu Phe Trp Pro Gly Ile Leu Leu Ile Glu Met Lys Ser Arg Gly Lys  
 65 70 75 80  
 Asp Leu Asp Lys Ala Tyr Asp Gln Ala Leu Asp Tyr Phe Ser Gly Ile  
 85 90 95  
 Ala Glu Arg Asp Leu Pro Arg Tyr Val Leu Val Cys Asp Phe Gln Arg  
 100 105 110  
 Phe Arg Leu Thr Asp Leu Ile Thr Lys Glu Ser Val Glu Phe Leu Leu  
 115 120 125  
 Lys Asp Leu Tyr Gln Asn Val Arg Ser Phe Gly Phe Ile Ala Gly Tyr  
 130 135 140  
 Gln Thr Gln Val Ile Lys Pro Gln Asp Pro Ile Asn Ile Lys Ala Ala  
 145 150 155 160  
 Glu Arg Met Gly Lys Leu His Asp Thr Leu Lys Leu Val Gly Tyr Glu  
 165 170 175  
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 195 200 205  
 Glu Thr Lys Thr Leu Glu Asp Gly Ser Asp Leu Ala His His Ile Asn  
 210 215 220  
 Thr Leu Phe Tyr Val Leu Asn Thr Pro Glu Gln Lys Arg Leu Lys Asn  
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 Leu Asp Glu His Leu Ala Ala Phe Pro Tyr Ile Asn Gly Lys Leu Phe  
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## NEB-228.ST25.txt

Glu Glu Pro Leu Pro Pro Ala Gln Phe Asp Lys Ala Met Arg Glu Ala  
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 Leu Leu Asp Leu Cys Ser Leu Asp Trp Ser Arg Ile Ser Pro Ala Ile  
 275 280 285  
 Phe Gly Ser Leu Phe Gln Ser Ile Met Asp Ala Lys Lys Arg Arg Asn  
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 Leu Gly Ala His Tyr Thr Ser Glu Ala Asn Ile Leu Lys Leu Ile Lys  
 305 310 315 320  
 Pro Leu Phe Leu Asp Glu Leu Trp Val Glu Phe Glu Lys Val Lys Asn  
 325 330 335  
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 Phe Phe Asp Pro Ala Cys Gly Cys Gly Asn Phe Leu Val Ile Thr Tyr  
 355 360 365  
 Arg Glu Leu Arg Leu Leu Glu Ile Glu Val Leu Arg Gly Leu His Arg  
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 Gly Gly Gln Gln Val Leu Asp Ile Glu His Leu Ile Gln Ile Asn Val  
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 Asp Gln Phe Phe Gly Ile Glu Ile Glu Glu Phe Pro Ala Gln Ile Ala  
 405 410 415  
 Gln Val Ala Leu Trp Leu Thr Asp His Gln Met Asn Met Lys Ile Ser  
 420 425 430  
 Asp Glu Phe Gly Asn Tyr Phe Ala Arg Ile Pro Leu Lys Ser Thr Pro  
 435 440 445  
 His Ile Leu Asn Ala Asn Ala Leu Gln Ile Asp Trp Asn Asp Val Leu  
 450 455 460  
 Glu Ala Lys Lys Cys Cys Phe Ile Leu Gly Asn Pro Pro Phe Val Gly  
 465 470 475 480  
 Lys Ser Lys Gln Thr Pro Gly Gln Lys Ala Asp Leu Leu Ser Val Phe  
 485 490 495  
 Gly Asn Leu Lys Ser Ala Ser Asp Leu Asp Leu Val Ala Ala Trp Tyr  
 500 505 510

NEB-228.ST25.txt

Pro Lys Ala Ala His Tyr Ile Gln Thr Asn Ala Asn Ile Arg Cys Ala  
515 520 525

Phe Val Ser Thr Asn Ser Ile Thr Gln Gly Glu Gln Val Ser Leu Leu  
530 535 540

Trp Pro Leu Leu Leu Ser Leu Gly Ile Lys Ile Asn Phe Ala His Arg  
545 550 555 560

Thr Phe Ser Trp Thr Asn Glu Ala Ser Gly Val Ala Ala Val His Cys  
565 570 575

Val Ile Ile Gly Phe Gly Leu Lys Asp Ser Asp Glu Lys Ile Ile Tyr  
580 585 590

Glu Tyr Glu Ser Ile Asn Gly Glu Pro Leu Ala Ile Lys Ala Lys Asn  
595 600 605

Ile Asn Pro Tyr Leu Arg Asp Gly Val Asp Val Ile Ala Cys Lys Arg  
610 615 620

Gln Gln Pro Ile Ser Lys Leu Pro Ser Met Arg Tyr Gly Asn Lys Pro  
625 630 635 640

Thr Asp Asp Gly Asn Phe Leu Phe Thr Asp Glu Glu Lys Asn Gln Phe  
645 650 655

Ile Thr Asn Glu Pro Ser Ser Glu Lys Tyr Phe Arg Arg Phe Val Gly  
660 665 670

Gly Asp Glu Phe Ile Asn Asn Thr Ser Arg Trp Cys Leu Trp Leu Asp  
675 680 685

Gly Ala Asp Ile Ser Glu Ile Arg Ala Met Pro Leu Val Leu Ala Arg  
690 695 700

Ile Lys Lys Val Gln Glu Phe Arg Leu Lys Ser Ser Ala Lys Pro Thr  
705 710 715 720

Arg Gln Ser Ala Ser Thr Pro Met Lys Phe Phe Tyr Ile Ser Gln Pro  
725 730 735

Asp Thr Asp Tyr Leu Leu Ile Pro Glu Thr Ser Ser Glu Asn Arg Gln  
740 745 750

Phe Ile Pro Ile Gly Phe Val Asp Arg Asn Val Ile Ser Ser Asn Ala  
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755

760

765

Thr Tyr His Ile Pro Ser Ala Glu Pro Leu Ile Phe Gly Leu Leu Ser  
 770 775 780

Ser Thr Met His Asn Cys Trp Met Arg Asn Val Gly Gly Arg Leu Glu  
 785 790 795 800

Ser Arg Tyr Arg Tyr Ser Ala Ser Leu Val Tyr Asn Thr Phe Pro Trp  
 805 810 815

Ile Gln Pro Asn Glu Lys Gln Ser Lys Ala Ile Glu Glu Ala Ala Phe  
 820 825 830

Ala Ile Leu Lys Ala Arg Ser Asn Tyr Pro Asn Glu Ser Leu Ala Gly  
 835 840 845

Leu Tyr Asp Pro Lys Thr Met Pro Ser Glu Leu Leu Lys Ala His Gln  
 850 855 860

Lys Leu Asp Lys Ala Val Asp Ser Val Tyr Gly Phe Lys Gly Pro Asn  
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35

NEB-228.ST25.txt

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